RouteFinder™
Multi-Protocol Router with 56K DSU

LAN-to-LAN Routing for Central-Site and Branch Office Networks

Model MTASR2-201

Quick Start Guide

MultiTech® Systems

Quick Start Guide

82087301 Revision B

DSU RouteFinder (Model No MTASR2-201)

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Patents

This Product is covered by one or more of the following U.S. Patent Numbers: ***5.301.274; 5.309.562***; ***5.355.365; 5.355.653; 5.452.289; 5.453.986***. Other Patents Pending.

TRADEMARK

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Introduction

Welcome to Multi-Tech's new DSU RouteFinder, Model MTASR2-201, which provides secure and seamless LAN-to-LAN routing capability and can also provide dial-up capability. This unit supports multiple WAN services and supports a wide range of routing protocols including IP, IPX, TCP, and RIP version 2. When the WAN 2 port is configured to support it, this unit also supports a secondary capability of dial-up Remote Access Server (RAS) access for telecommuters and mobile users from any Point-to-Point Protocol (PPP) or Serial Line Internet Protocol (SLIP) networking client.

The DSU RouteFinder features a 10BaseT port for local LAN connection, a command port for configuration, a 56K bps DDS 4-wire WAN connection, and an RS232/V.35 port for an optional Data Communications Equipment (DCE) device (i.e., external modem, T1/E1 CSU/DSU, etc.). System management is provided through the command port using bundled Windows® based software which provides easy-to-use configuration menus.

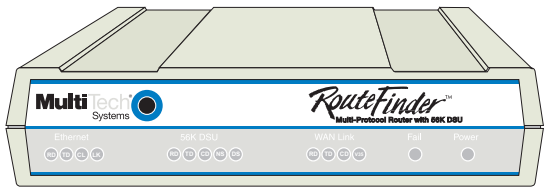


Figure 1. DSU RouteFinder

* Some DSU RouteFinder units may be marked “MultiRouter” or “MultiRouter 200-Series”; they are equivalent to the “DSU RouteFinder” referred to throughout this quick start guide.

Related Documentation

This DSU RouteFinder Quick Start Guide is intended to be used by qualified systems administrators and network managers. This quick start guide provides the necessary information for a qualified person to unpack, cable, load software, and configure the unit for proper operation.

A detailed DSU RouteFinder User Guide is also provided with your unit. The user guide provides in-depth information on the features and functionality of Multi-Tech's DSU RouteFinder. The User Guide is provided in disk form and is also available from our web site.

The disk version is produced using Adobe Acrobat. To view or print your copy of a user guide, load Adobe Acrobat Reader on your system. Adobe Acrobat Reader can be downloaded from Adobe's Web site at:

http://www.adobe.com/prodindex/acrobat/readstep.html

Launch the Reader and open the **.pdf** file that is on the disk.

Viewing and printing a user guide from the web also requires that you have the Adobe Acrobat Reader loaded on your system. The DSU RouteFinder User Guide is also available on Multi-Tech's Web site at:

http://www.multitech.com

From the MTS home page, click **Support** | **Manuals** | **DSU RouteFinder** and choose **DSU RouteFinder** to download the **.pdf** file.

Safety Warnings

1. Never install telephone wiring during a lightning storm.
2. Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
3. Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
4. Use caution when installing or modifying telephone lines.
5. Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electrical shock from lightning.
6. Do not use the telephone to report a gas leak in the vicinity of the leak.

Unpacking your DSU RouteFinder

Remove all items from the box. See Figure 2.

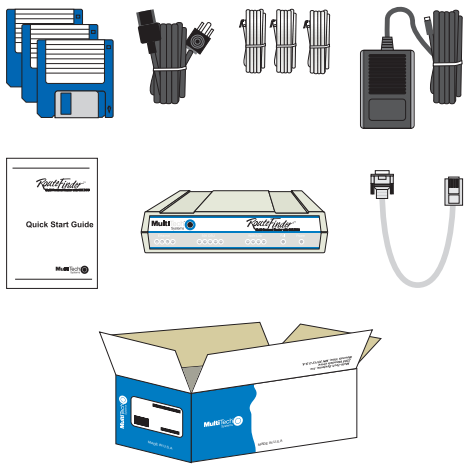


Figure 2. Unpacking

8-Position DIP Switch

The DSU RouteFinder is equipped with a 8-position DIP switch. Figure 3 shows the DIP switch, and the chart that follows details the default positions and other options.

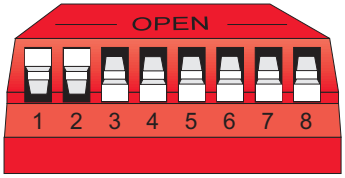


Figure 3. 8-position DIP switch

Position 1:	OPEN* (up)	Normal Mode operation
	Closed (down)	Loopback Mode operation
Position 2:	OPEN* (up)	DDS clocking
	Closed (down)	Internal Clocking
Positions 3 - 8:	Reserved for future use.	

* Denotes Factory Default setting

Note: The DIP switch settings cannot be changed externally; you must remove the circuit board from the chassis. Refer to the steps in the next section, V.35 Shunt Procedure, for instructions on removing the circuit board.

V.35 Shunt Procedure

If you are using an external DCE device on the WAN 2 RS232/V.35 port, and the connection will be a V.35 connection, the internal shunt must be moved from the RS232C (default) position prior to cabling and power-up. The following steps detail the procedures for switching the shunt.

Step	Procedure
1	Ensure that the external power supply is disconnected from the DSU RouteFinder.
2	Turn the DSU RouteFinder over and remove the cabinet mounting screw (Figure 4) from the chassis.

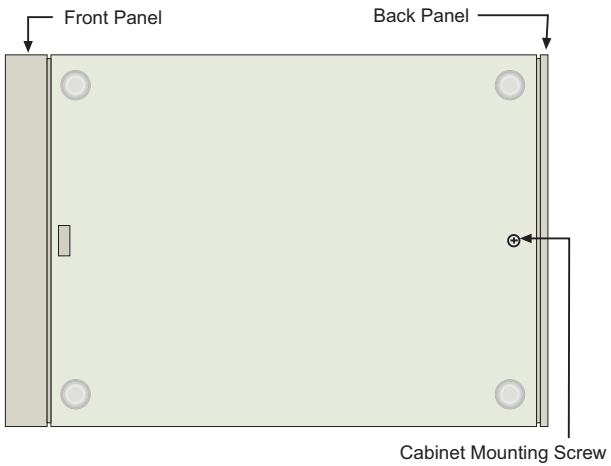


Figure 4. Cabinet Mounting Screw Location

3	Being sure to support the back panel, turn the DSU RouteFinder right side up, tilt the back panel down, and slide the circuit board out of the chassis.

4 Place the unit on a flat, grounded surface.

5 Pry the shunt out of the RS232 position, and insert it in the V.35 position. See Figure 5.

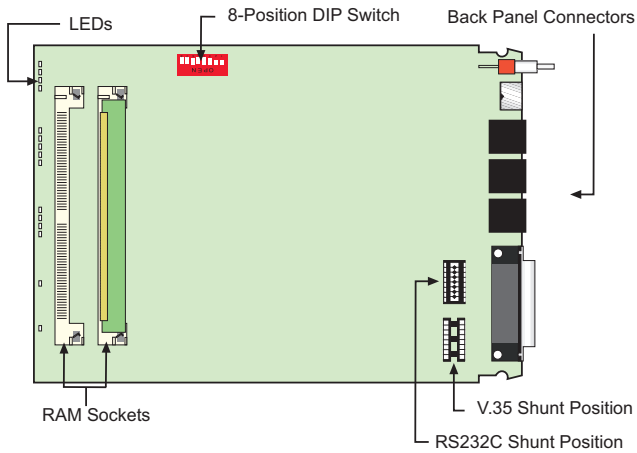


Figure 5. Shunt Positions

Note: if you wish to make changes to the 8-position DIP switch, do so at this time. For details on DIP switch settings, refer to the previous section, “8-Position DIP Switch”.

6 Align the board with the guide slots on the inside of the chassis and carefully slide the board back into the chassis.

7 While supporting the back panel, turn the DSU RouteFinder over again, and replace the cabinet mounting screw.

8 Turn the DSU RouteFinder right side up again and proceed to the next section to connect the cables.

Cabling your DSU RouteFinder

Cabling your DSU RouteFinder involves making the proper Power, Command Port, and DSU connections, and optionally, the RS232/V.35 connection. Figure 6 shows the back panel connectors and associated cable connections. The procedure that follows lists the steps for connecting the external cables to your DSU RouteFinder.

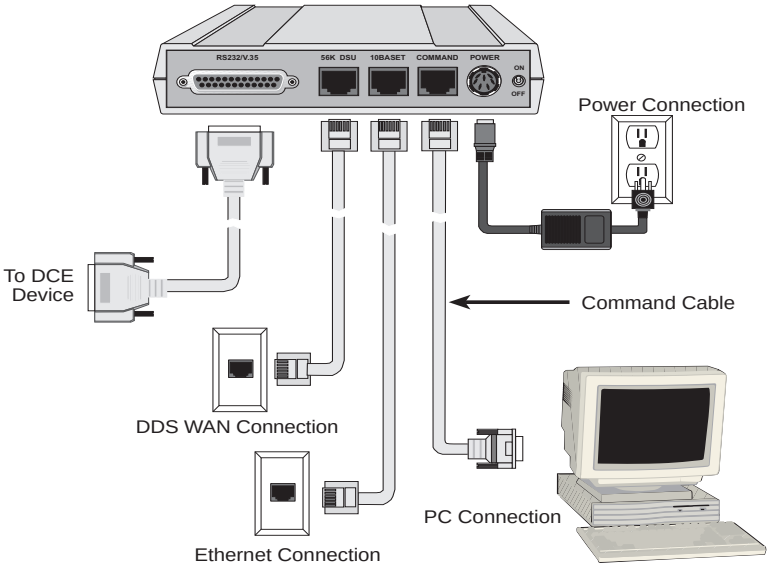


Figure 6. Cable Connections

Cabling Procedure

Step	Procedure

1. Connect one end of the power supply to a live AC outlet and connect the other end to the DSU RouteFinder as shown in Figure 6. The power connector is a 6-pin circular DIN connector.
2. Connect the DSU RouteFinder to a PC using the RJ-45 to DB-9 (female) cable provided with your unit. Plug the RJ-45 end of the cable into the Command port of the DSU RouteFinder and the other end into the PC's COM port. See Figure 6.
3. Connect a network cable to the ETHERNET 10BASET connector on the back panel of the DSU RouteFinder. Connect the other end of the cable to your network.
4. Connect one end of an RJ-45 cable to the 56K DSU connector on the back of the DSU RouteFinder. Connect the other end to your Digital Data Service (DDS) WAN connection.
5. If you plan to use the optional RS232 port for dial backup, connect one end of an RS232 cable to the RS232/V.35 connector on the back panel of the DSU RouteFinder and connect the other end of the cable to an external DCE device such as a modem or T1/E1 CSU/DSU.
6. Turn on power to the DSU RouteFinder by setting the ON/OFF switch to the ON position. **Wait** for the FAIL LED on the DSU RouteFinder to go OFF before proceeding. This may take a couple of minutes to go OFF.

At this time your DSU RouteFinder is completely cabled. Proceed to the next section to load the RouteFinder software.

Loading your Software

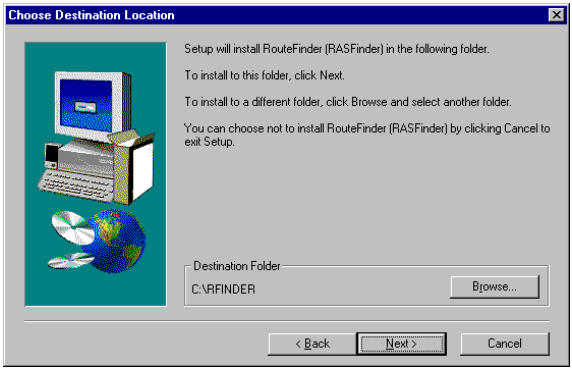
The following loading procedure does not provide every screen or option in the process of installing the RouteFinder software. It is assumed that a technical person with a thorough knowledge of Windows and the software loading process is doing the installation.

1. Run Windows on the PC that is connected to the DSU RouteFinder's Command Port.
2. Insert the RouteFinder **Disk 1** into the disk drive on the PC that is connected to the DSU RouteFinder.
3. **Win3.1 users** - in the Program Manager, access Run by clicking **File | Run**. In the Run dialog box, type **a:\setup.exe** or **b:\setup.exe** (depending on the letter of your floppy disk drive) in the Command Line field and then click **OK**.

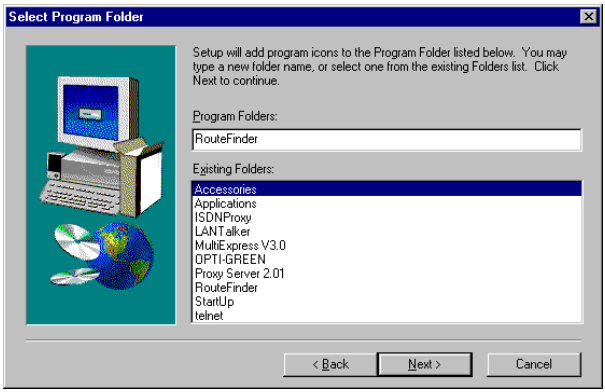
   Win95/98/NT users - click **Start | Run**. In the Run dialog box click on the down arrow and choose **a:\setup** or **b:\setup** (depending on the letter of your floppy disk drive), then click **OK**.

RouteFinder (RASFinder) Setup
RouteFinder (RASFinder)
Welcome
Welcome to the RouteFinder (RASFinder) Setup program. This program will install RouteFinder (RASFinder) on your computer.
It is strongly recommended that you exit all Windows programs before running this Setup program.
Click Cancel to quit Setup and then close any programs you have running. Click Next to continue with the Setup program.
WARNING: This program is protected by copyright law and international treaties.
Unauthorized reproduction or distribution of this program, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under law.
Next >
Cancel

4. When the Welcome screen appears, press Enter or click **Next>** to continue.

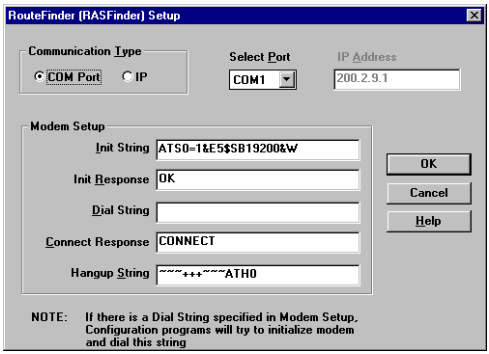

Choose Destination Location
Setup will install RouteFinder (RASFinder) in the following folder.
To install to this folder, click Next.
To install to a different folder, click Browse and select another folder.
You can choose not to install RouteFinder (RASFinder) by clicking Cancel to exit Setup.
Destination Folder
C:\RFINDER
Browse...
< Back
Next >
Cancel

5. Press **Enter** or click **Next>** to continue.

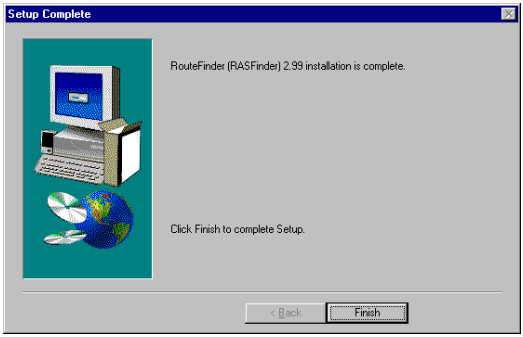


6. When the **Select Program Folder** dialog box appears, click (to the right of the text) on the **Program Folders** text box, then backspace through "| RASFinder" until the cursor is next to the letter "r" in "RouteFinder"; this will become the name of the icon group. Press **Enter** or click **Next>** to continue.

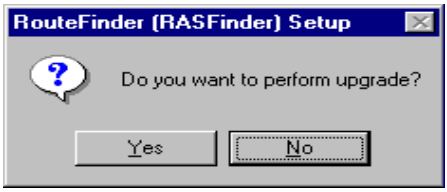
7. The next dialog box enables you to designate the COM port of the PC that is connected to the DSU RouteFinder. On the **Select Port** field, click on the down arrow and choose the COM port of your PC (COM1 -- COM4) that is connected to the DSU RouteFinder.



8. Click **OK** to continue.



9. Click **Finish** to continue. The "**Do you want to perform upgrade?**" dialog box is displayed.

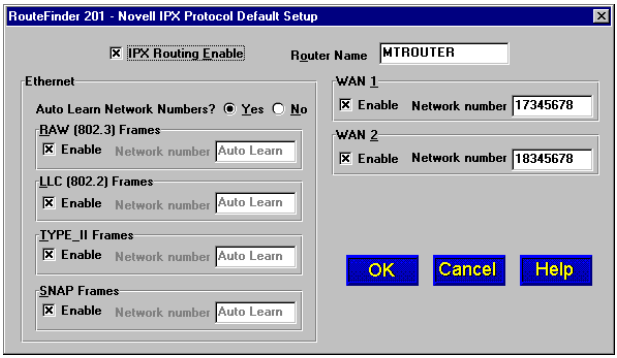


10. Click **No** to skip the upgrade process. The "**Do you want to download default setup?**" dialog box appears.

11. Click **Yes** to download the default setup. (Clicking on **No** prevents you from setting up the defaults and downloading them to the DSU RouteFinder; instead, you are returned to the program manager, where in Windows 95 you will see a window with shortcut icons for all the various utility programs in the software.)

12. The **Novell IPX Protocol Default Setup** dialog box appears.

    Note: To configure your DSU RouteFinder, you now will use a series of dialog boxes -- **Novell IPX Protocol Default Setup**, **IP Protocol Default Setup**, and **WAN Ports Default Setup**.



13. If your network protocol is **IPX,** continue with the following steps. However, if your network protocol is **IP**, click on the **IPX Routing Enable** check box to *disable* IPX, then click **OK** and proceed to step 18.

14. **Router Name:** If this is the only DSU RouteFinder on your network, you can use the default Router Name (MTROUTER); otherwise, you must assign a new Router Name in this field. The Router Name can be any printable ASCII string of up to 47 characters. The DSU RouteFinder uses this name to advertise its service in the IPX internetwork.

15. **Ethernet:** You can enable **Auto Learn Ethernet Network Numbers** by leaving the default (**Yes**) checked, or you can manually assign the network numbers after disabling the Auto Learn option by clicking on **No**. If no file server is connected to the Ethernet segment, then you should select No.

    If you leave Auto Learn enabled, the DSU RouteFinder will learn the IPX network numbers from the file server.

    If you disable Auto Learn, record in the space below the network numbers assigned by the network file server for each of the four frame types [(Raw (802.3), LLC (802.2), EthernetII (Type II), SNAP]. You can also record here the Network numbers for WAN 1 and WAN 2.

    RAW (802.3) Frames Network Number _____
    LLC (802.2) Frames Network Number _____
    TYPE_II Frames Network Number _____
    SNAP Frames Network Number _____
    WAN 1 Network Number _____
    WAN 2 Network Number _____

    When you manually assign network numbers, make sure they match the network numbers assigned to your local file server (if any).

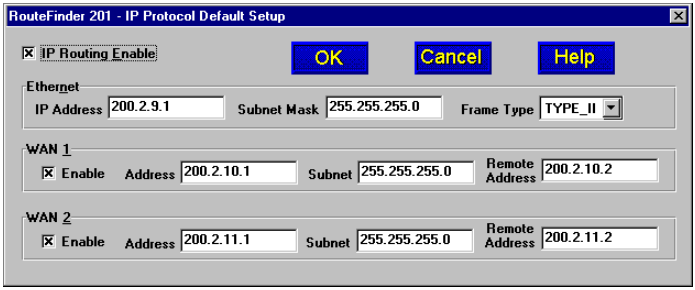
16. **WAN1 and WAN 2**: Click the associated check box if one or the other is to be disabled; otherwise, leave the **Enable** checked and double-click the **Network number** text box and enter the WAN Network number.

    The WAN network numbers have to be assigned by the network administrator and must be unique throughout the entire internetwork.

    Note: The WAN ports do not have the capability of learning the network number, unlike the LAN port (i.e., the WAN ports do not have a file server).

17. Click **OK** when you are satisfied with your selections.

18. If you clicked **OK** from the Novell IPX Protocol Default Setup dialog box (step 13), the **IP Protocol Default Setup** dialog box is displayed.



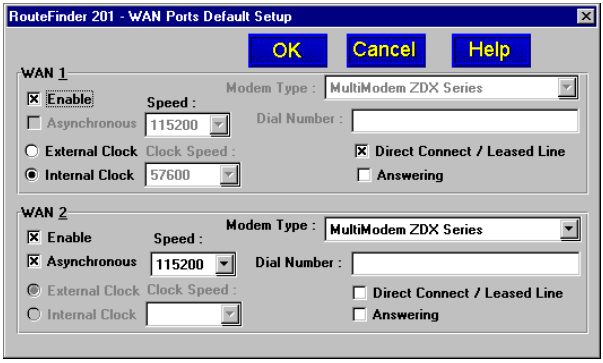
19. To change the IP parameters, proceed to the next step. Otherwise, click **OK** to open the **WAN Ports Default Setup** dialog box, then proceed to step 23.

20. The default Ethernet IP Address has to be changed to your unique LAN address. In the Ethernet group, change the default **IP Address**, **Subnet Mask,** and **Frame Type** to the values assigned to your LAN port.

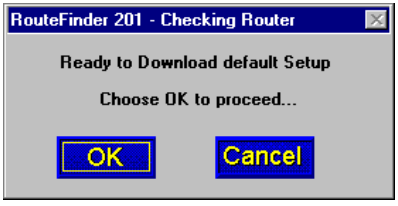
21. Click **OK** when you are satisfied with your selections.

22. The **WAN Ports Default Setup** dialog box appears with both WAN Ports enabled. Note: the External/Internal Clock for WAN

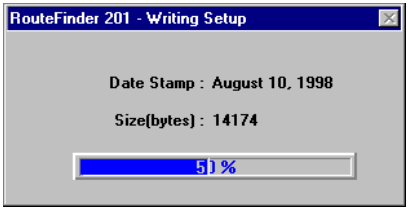
1 is selected on the 8-position DIP switch on the circuit board (External or DDS Clocking is the default). If WAN 1 is not on a Direct Connection or Leased Line, click that option to disable it, then enter your ISP's phone number in the **Dial Number** field.



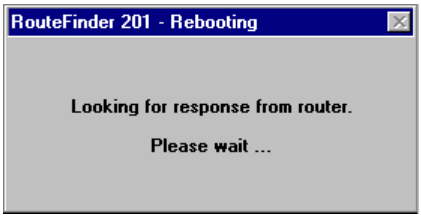
23. Set up all parameters in the WAN 2 group. Select the modem type from the pull-down list; for a synchronous connection, click the **Asynchronous** option to disable it; for dial-out operation, enter the (ISP) phone number in the **Dial Number** field, or click the **Answering** option if WAN 2 will be used to answer dial-in calls from remote locations.
24. Click **OK** when you are satisfied with your selections.
25. The **Checking Router** dialog box is displayed. Click **OK**.



The **Writing Setup** dialog box (with the current date and the file size in bytes) is displayed as the software sends the configuration file to the DSU RouteFinder.



The **Rebooting** dialog box is displayed.



26. Check to ensure that the **Fail** LED on the DSU RouteFinder goes **Off** after the download is complete and the DSU RouteFinder is rebooted (the **Rebooting** dialog box goes away).
27. **Win3.1 users** - you are returned to your Program Manager where the RouteFinder Program Group and Program Items (RouteFinder icons) have been created.

    Win95/98/NT users - you are returned to your desktop.

Your DSU RouteFinder is operational at this time.

Limited Warranty

Multi-Tech Systems, Inc. (“MTS”) warrants that its products will be free from defects in material or workmanship for a period of two years from the date of purchase, or if proof of purchase is not provided, two years from date of shipment. MTS MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED, AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED. This warranty does not apply to any products which have been damaged by lightning storms, water, or power surges or which have been neglected, altered, abused, used for a purpose other than the one for which they were manufactured, repaired by the customer or any party without MTS’s written authorization, or used in any manner inconsistent with MTS’s instructions.

MTS’s entire obligation under this warranty shall be limited (at MTS’s option) to repair or replacement of any products which prove to be defective within the warranty period, or, at MTS’s option, issuance of a refund of the purchase price. Defective products must be returned by Customer to MTS’s factory transportation prepaid.

MTS WILL NOT BE LIABLE FOR CONSEQUENTIAL DAMAGES AND UNDER NO CIRCUMSTANCES WILL ITS LIABILITY EXCEED THE PURCHASE PRICE FOR DEFECTIVE PRODUCTS.

Service

Multi-Tech has an excellent staff of technical support personnel available to help you get the most out of your Multi-Tech product. Refer to your DSU RouteFinder User Guide for Warranty and Service information.

FCC Declaration

NOTE: This equipment has been tested and found to comply with the limits for a **Class A** digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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